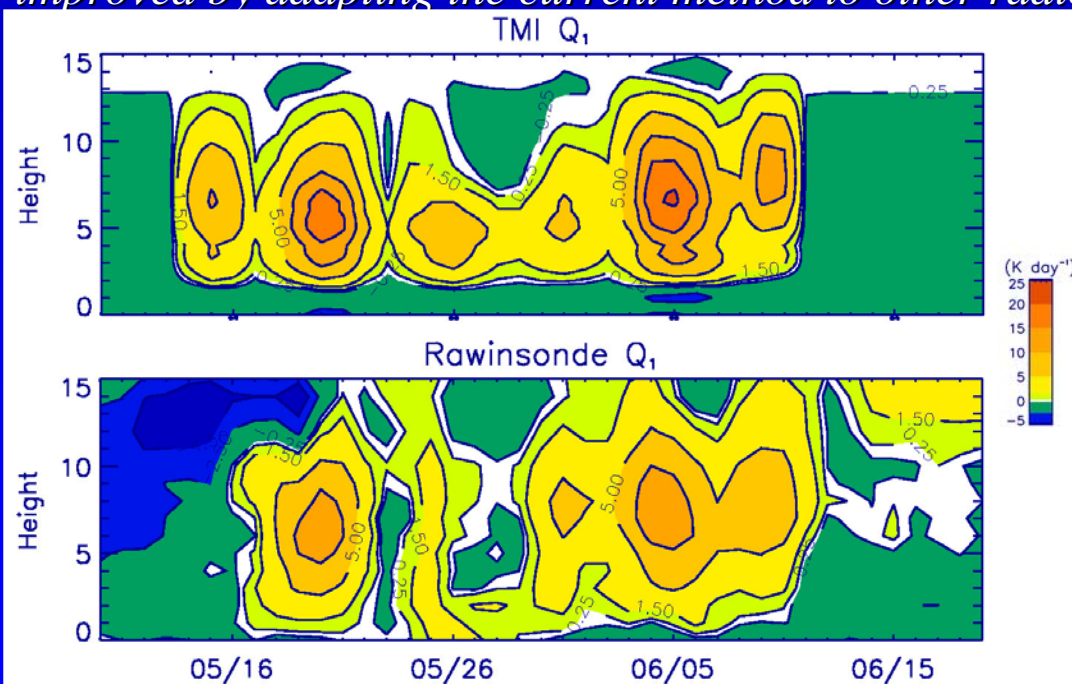


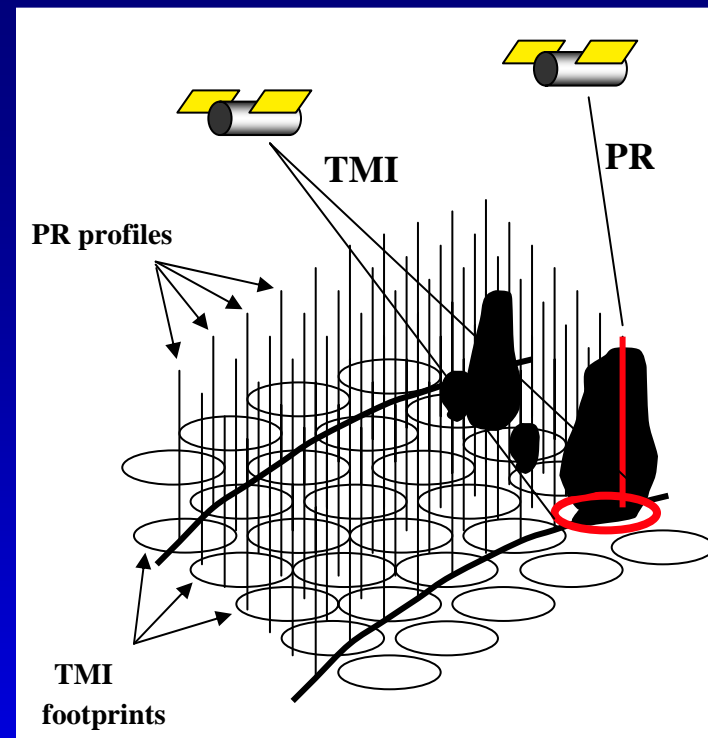
Latent Heating Estimation by Satellite Microwave Radiometry

Method

- The satellite technique uses combined spaceborne radar (PR) and passive microwave (TMI) estimates of high-resolution precipitation and latent heating vertical structures to “train” a TMI-only algorithm for retrieving latent heating vertical profiles. The advantage of using only passive microwave data for heating estimation is that several passive microwave radiometers are orbiting at any given time, while only one spaceborne precipitation radar is operational. Temporal sampling can therefore be improved by adapting the current method to other radiometers.



rawinsonde estimates from Johnson and Ciesielski (2002)



Validation

- TMI estimates of latent heating are augmented by climatological radiative heating to obtain estimates of total diabatic heating (Q_1). Comparisons to rawinsonde Q_1 estimates from the SCSMEX campaign show reasonable agreement, considering the limited temporal sampling of the TMI ($\sim 1.4 \text{ d}^{-1}$).

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